CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

Technical Assistance Response Plan – Terms of Reference

Country	**Panama**
Request ID#	**20170000033**
Title	Accelerating the Transition to Sustainable Mobility and Low Carbon Emissions in Panama City
NDE	*Emilio Sempris, Ministro de Ambiente, esempris@miambiente.gob.pa, Edif. 804, Apartado Ancón-República de Panamá, Calle Broberg, Panamá C-0843-00793*
Proponent	José Isabel Blandón, Alcalde del Municipio de Panamá, j.blandon@municipio-pma.gob.pa

Summary of the CTCN technical assistance

Panama is interested in the adoption of cleaner technologies for its public transportation system, as a means to mitigate carbon emissions and improve quality of life. However, Panama needs to understand the technical and economic viability of the different technologies. To help address this barrier, this technical assistance, produces an expert analysis giving particular attention to two vehicle platforms, namely battery electric and compressed natural gas. The techno-economic and environmental analyses will use state-of-the-art methodologies and tools. To integrate the analysis with an understanding of the policy context in Panama, the project will engage the key stakeholders, including the Secretariat of Energy, the Ministry of Environment, the Municipal Government, the Transit and Ground Transportation Authority, and others.

The outputs of the technical assistance will inform Panama's strategic decisions toward creating a sustainable fleet of buses for the metropolitan area. Such decisions will involve the planning for and investments in vehicles and supporting infrastructure. The Technological options to be chosen will need to be integrated into the country energy system planning with emphasis on the overall energy sources mix scenario.

Agreement:

National Designated Entity to the UNFCCC Technology Mechanism
Name: Emilio Sempris
Title: Ministro de Medio Ambiente, Encargado
Date: 20/11/2018
Signature:

Proponent (signature of the Proponent is optional)
Name: José Isabel Blandón
Title: Alcalde del Municipio de Panamá
Date: 20/11/18
Signature:

UNFCCC Climate Technology Centre and Network (CTCN)

Name: Jukka Uosukainen
Title: CTCN Director
Date: 11/10/2018
Signature:

1. Background and context

The metropolitan area of Panama City is articulated along a coastal strip of about 80 km in length, extending from East to West between the Pacific Ocean and a coastal sierra formed by a series of hills of low altitude, which they separate it from the Atlantic basin of the isthmus.

The metropolitan area has grown rapidly since the 1970's, reaching 1.7 million inhabitants and an area of 80 sq.-km. With a footprint of about 330 sq.-km, the metro area has grown predominantly along three corridors, instead of radially, which causes difficulties in urban mobility, with long routes and congestion.

Specific projects have been developed in recent years to improve mobility in the Metropolitan area. Since 2010, the Metro Bus System has been implemented in the Districts of Panama and San Miguelito, a project that was integrated and regulated by the Panama Transit and Land Transportation Authority (ATTT). In the same year, the concession to Transporte Masivo de Panamá SA was awarded (MIBUS). According to MIBUS, the Metro Bus system has a fleet of 1,438 buses, out of which 1,235 are Gran Viale 7 years old and 203 Torino recently released 5 months ago.

In early 2016, the Comprehensive Plan for Sustainable Urban Mobility (referred to as PIMUS, its Spanish acronym) was developed for presentation to the Cabinet Council and the National Assembly. The PIMUS, closely related to the Nationally Appropriate Mitigation Actions (NAMA), provides guidance for Panamá's urban transportation transformation over a 20-year horizon, giving strong attention to urban planning, public participation, and long-term sustainability.

These initiatives are evidence of the commitment of the Government of Panama to the transformation of the national public transport system, both from operational as well as sustainability perspectives. In this context, the present analysis of the technical, economic, and social aspects of different public transport vehicle technologies will identify the most suitable options for the city and inform strategies to promote sustainable mobility.

2. Problem statement

As a signatory of the Paris Agreement, Panama has committed to addressing the challenge of climate change. Mitigation of transportation emissions is at the heart of Panama's climate strategic options.

A growth in car ownership has resulted in a high rate of motorized trips, severe road congestion, and deteriorating air quality. In areas of the city (e.g. Casco Urbano), concentrations of particulate matter exceed World Health Organization standards. The number of daily trips climbs to nearly 2,260,000 (1.28 trips per person per day), out of which about 45% are made by car, and 38% by public transport,. Road congestion is bringing average travel times to about 67 min/trip for public transport and 43 min/trip for private vehicle. Projections indicate that travel times are poised to increase.

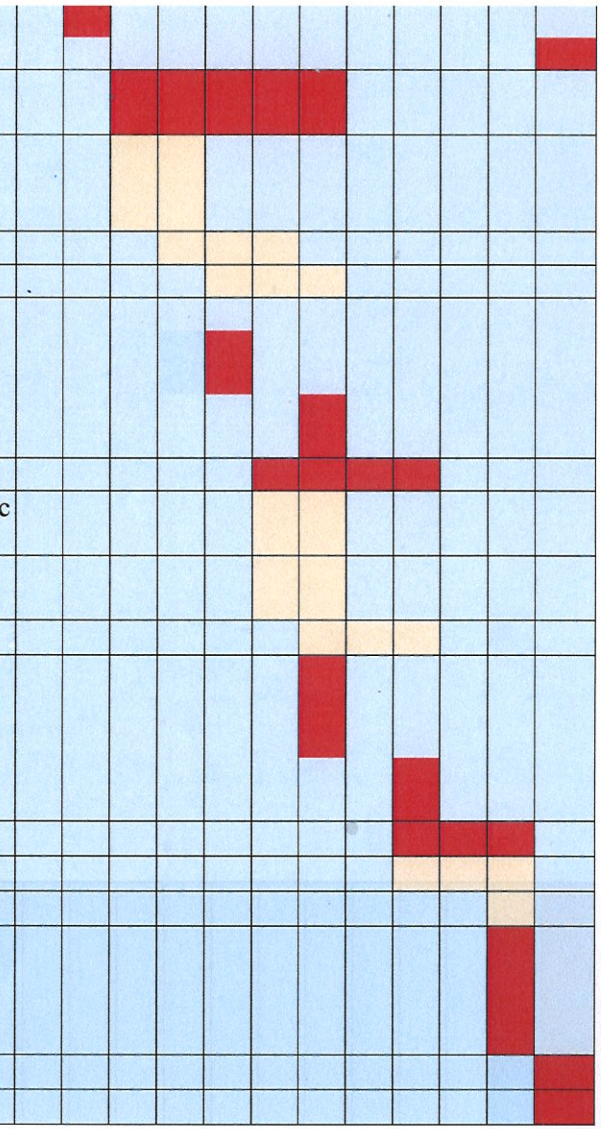
The electrification of transportation is one of the key pathways that can be considered to reduce emissions from this sector. This is particularly true given that Panama's National Determined Commitment includes a 30% increase in the share of electricity from renewable resources. Panama has deployed the first battery electric bus for testing. This technical assistance will help Panama further understand the potential of this technology in local conditions and lay the ground for a long-range strategy and investments to dramatically reduce emissions from public transportation.

3. Logical Framework for the CTCN Technical Assistance:

(Guidance: Please note that multiple activities lead to one Output, and multiple Outputs lead to one Outcome. There can be several Outputs, but only one Outcome description capturing the CTCN technical assistance. Deliverables are the products or services to be delivered to the NDE/Proponent/CTCN based on the Activities and the Outputs.)

	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
***Objective**: The project aims at supporting Panama in the transformation of the transport sector by accelerating the adoption of zero emission vehicles.*												
Outcome: *(Guidance: The Outcome articulates changes in the institutional and behavioural capacities for climate technology development or deployment. Activities and Outputs contribute to the Outcome, but the Outcome is not within the direct control of the CTCN activities). (maximum 400 characters including spaces).* *Supply Panama with with actionable information regarding the technical and economic feasibility of implementing new technologies in the road public transport system, with emphasis on zero emission technologies.*												
Output 1: Development of implementation planning and communication documents												
Activity 1: *All implementers must undertake the following activities at the beginning and at the end of the CTCN technical assistance.* i) A detailed work plan of all activities, deliveries, outputs, deadlines and responsible persons/organisations and detailed budget to implement the Response Plan. The detailed work plan and budget must be based directly on this Response Plan; ii) Based on the work plan, a monitoring and evaluation plan with specific, measurable, achievable, relevant, and time-bound indicators used to monitor and evaluate the timeliness and appropriateness of the implementation. The monitoring and evaluation plan should apply selected indicators from the Closure and Data Collection report template and enable the lead implementer to complete the CTCN Closure and Data collection report at the end of the assignment (please refer to item iv below and section 14 in the Response Plan); iii) A two-page CTCN Impact Description formulated in the beginning of the technical assistance and update/revised once the technical assistance is fully delivered (a template will be provided); iv) A Closure and Data Collection report completed at the end of the technical assistance (a template will be provided).												
Deliverable 1: i) Detailed response plan ii) Monitoring and evaluation plan												

iii) CTCN Impact Description iv) Closure and Data Collection report	
Output 2: Transport model definition: evaluation of operating conditions for transit buses in Panama	
Activity 2.1: Monitor the 5 de Mayo – Casco Antiguo electric bus service pilot. Identify and monitor at least four conventional bus lines that represent the different driving conditions of Panama City and San Miguelito.	
Activity 2.2: Identify the most suitable low emission public transport technology for Panamá City.	
Activity 2.3: Economic, environmental, and social assessment impact of different bus configurations	
Deliverable 2: D2.1 — Definition of the parameters to be monitored in the pilot project and analysis of the monitoring results in the pilot project and the selected bus lines with conclusions. D2.2 — Report with a recommendation of the most appropriate technology for Panama. D2.3 — Report with the economic, environmental and social assessment.	
Output 3: Transport Plan Draft Proposal	
Activity 3.1: Overview of the types of alternative fuel technologies available for implementation in public buses fleets and recommendations for Panama.	
Activity 3.2: Revision and update of existing databases, to integrate new bus operational data and information produced as part of the technical assistance.	
Activity 3.3: Diagnosis of the transport system in Panama	
Deliverables 3: D3.1 — Document summarizing international experiences and recommendations for Panama D3.2 — Document summarizing recommendations for databases D3.3 — Diagnosis of the transport system in Panama, including an economical evaluation of subsidies and real operational costs of the current system and of the proposed solutions	
Output 4: Capacity Building	
Activity 4.1: Final workshop with all relevant stakeholders	
Activity 4.2: Training on the transport model	
Deliverables 4: D4.1 — Report on the final Workshop with all relevant stakeholders and Final transport plan (agreed by all stakeholders) D4.2 — Training material and report on the specialized training	
Output 5: Monitoring and Evaluation	
This output will result in the following self-explanatory products, all in English:	



4. Resources required and itemized budget:

Please provide an indicative overview of the resources required and itemized budget required to implement the CTCN technical assistance, including for M&E-related activities, using the table below. Important to note that minimum 1% of the budget should explicitly target gender specific activities related to the technical assistance (please see section 10 for further information on gender). Once the Response Plan is completed, a Response Implementation partner(s) will be selected by the Climate Technology Centre (CTC). A detailed activity-based budget for the CTCN assistance will be finalized by the CTCN and selected Implementer.

Activities and Outputs	**Input: Human Resources** *(Title, role, estimated number of days)*	**Input: Travel** *(Purpose, national vs. international, number of days)*	**Inputs: Meetings/events** *(Meeting title, number of participants, number of days)*	**Input: Equipment/Material** *(Item, purpose, buy/rent, quantity)*	**Estimated cost** *Please accumulate the costing at Activity and Output level and provide an estimated costing range for each activity and the total Response Plan*	
					Minimum	**Maximum**
Output 1: Development of implementation planning and communication documents						
Activity 1.1: Time-intensive collection of data and information necessary for the analyses in following activities. Formulation of i) Detailed work plan, ii) Monitoring and evaluation plan, iii) CTCN Impact Description, iv) Closure and Data Collection report.	*Project Manager, 3 Deputy Project Manager, 3 Senior Consultant, 9 Analyst, 10*	*To participate of National Strategy kickoff meeting and to meet with local stakeholders. International travel (U.S. – Panama), 5 days*	*Coordination call: 3 participant Kick-off meeting: 10 participants National Plan meeting: 12 participants. National Plan kickoff meeting: Undetermined participants Individual meetings with local stakeholders: 10 participants expected.*		*USD 9,060*	*USD 9,060*
Output 2: Transport model definition: evaluation of						

operating conditions for transit buses in Panama						
Activity 2.1: Monitor of a pilot electric bus service. Identify and monitor at least four bus lines which represent the different driving conditions of Panama City and its surroundings.	*Project manager, 2* *Deputy project manager, 3* *Analyst, 10*	*Information recollection and transport system monitoring.* *International travel (Argentina – Panama), 45 to 60 days.*	*1. Transport system characterization. MiBus. 4 to 6 people.* *2. Energy grid characterization. SNE. 4 to 6 people.* *3. Panama´s demographic and traffic characterization. City Council. 6 to 6 people.*		*USD 4,635*	*USD 4,635*
Activity 2.2: Identify the most suitable technology for Panamá City.	*Project manager, 1* *Deputy project manager, 4* *Senior Consultant, 2* *Analysts, 10*				*USD 4,000*	*USD 4,000*
Activity 2.3: Economic, environmental, and social assessment impact of different bus configurations	*Project manager, 2* *Deputy project manager, 3* *Senior Consultant, 2* *Analysts, 8*	*Information collection, meetings, and project oversight.* *International travel (U.S. – Panama), 3 days*	*Meetings with* *1. Department of Energy* *2. Ministry of Environment* *3. CTCN* *4. City Government* *2+ in each of the meetings.* *5 days*		*USD 4,000*	*USD 4,000*
Output 3: Transport Plan Draft Proposal						
Activity 3.1: Overview of the	*Project manager, 4*				*USD 5,000*	*USD 5,000*

types of alternative fuel technologies available for implementation in public buses fleets and diagnosis of the transport system in Panama.	*Deputy project manager, 2* *Analyst, 5*					
Activity 3.2: Revision and update of existing databases	*Project manager, 2* *Deputy project manager, 2* *Analysts, 4*				*USD 2,000*	*USD 2,000*
Activity 3.3: Diagnosis of the transport system in Panama	*Project manager, 2* *Deputy project manager, 2* *Senior consultant, 7* *Analyst, 2*	*This workshop will be done remotely, or if possible, aligned with stakeholder activities in Activity 2.3.*	*Stakeholder workshop on mobility plan.* *This will be a half-day to one-day workshop, tentatively including 12 stakeholders.*		*USD 9,830*	*USD 9,830*
Output 4: Capacity Building						
Activity 4.1: Final workshop with all relevant stakeholders	*Project manager, 5* *Deputy project manager, 9* *Senior Consultant, 1* *Analyst, 5*	*International travel (Argentina – Panama), 3 days to participate of workshop with local stakeholders.*	*Workshop with relevant local stakeholders to discuss the outputs of the project.* *This will be a half-day event. Attendance will be coordinated with the Working Group.*		*USD 12,125*	*USD 12,125*
Activity 4.2: Training on the transport model	*Project manager, 4* *Deputy project manager, 8* *Analyst, 2*		*An extension of the workshop dedicated to capacity building, providing training on the transport model that will be developed*		*USD 9,000*	*USD 9,000*

			as part of the technical assistance. This will be a half-day event, with attendance open to interested stakeholders. Tentative participants: 12.			
Output 5: Monitoring and Evaluation This includes 1% of the total budget to conduct a gender mainstreaming analysis.	*Project manager: 7 Deputy project manager, 3 Senior Consultant, 9 Analysts, 4*				*USD 12,620*	*USD 12,620*
Final Report	*Project manager, 6 Deputy project manager, 8 Senior Consultant, 2*				*USD 12,630*	*USD 12,630*
Estimated range of costing for the entire Response Plan					*USD 84,900*	*USD 84,900*

5. Profile and experience of experts

Based on the required Human Resources identified in section 4 (Resources required and itemized budget) please provide a description of the required profile of all involved experts for the implementation of the CTCN Response Plan.

Experts required	Brief description of required profile
Please use the same titles for all experts as applied in section 4.	*Please provide a short description of expertise and experience needed (education, sectors of expertise, years of experience, country experience, language requirements, etc.).*
Project Manager: Gustavo Collantes, PhD.	*Dr. Collantes has over 18 years of experience in the private sector, government, and academia, and a passion for interdisciplinary approaches to help address complex questions related to transportation, innovation, and climate change mitigation. He is a recognized expert in transportation electrification and has vast experience in the analysis and management of innovation processes in transportation.*
Deputy Project Manager:	*Dr. Orbaiz has more than 10 years of international professional experience in areas relevant to this project. He has a*

Pedro Orbaiz, PhD.	*strong background in R&D of sustainable, clean and renewable energy technologies of both for stationary and mobile applications.*
Senior Consultant: Alejandro Moreno, PhD.	*Dr. Moreno has worked closely with the Government of Panamá since 2014 through the climate change unit of UN Environment based in Panama. He specializes in developing proposals for the Green Climate Fund. He works for UN agencies and private consulting companies. His last position at the UN Environment was closely related to climate change finance, with a focus on sustainable transport.*
Senior Consultant: Rodrigo Chaparro	*Mr. Chaparro is an energy and climate change specialist with extensive hands-on experience providing advisory services to corporations, multilateral banks, and international agencies. He has successfully delivered over 15 major consulting projects in the United States and Latin America. He brings 20+ years of experience, with twelve of them in senior leading roles. He specializes in advanced energy systems, renewable energy and carbon markets.*
Technical Analyst: Nicolás van Dijk, Eng.	*Mechanical Engineer with 2 years of experience in renewable energy and sustainable mobility projects, mainly in computational simulation of vehicles and recollection and post-processing of data.*
Technical Analyst: Santiago Cosentino, Eng.	*Mechanical Engineer with 2 years of experience in renewable energy and sustainable mobility projects, mainly in computational simulation and transport sector emissions mitigation measures planning.*
Technical Analyst: Tomás Seguí, Eng,	*Mechanical Engineer with more than 2 years of experience in energy and sustainable mobility projects, especially in measures planning, data collection and analysis in Buenos Aires City.*

6. Intended contribution to impact over time

Panama City and San Miguelito districts have the highest levels of population density in Panama, with 4,309 and 6,287 people per sq.-km respectively, according to a 2010 census, with an approximate resulting population of 700,000 people. In a first approximation, these are the most immediate beneficiaries of the improvements in local air quality,

The intended impact in terms of reduction in GHG emissions expected from this technical assistance can be estimated relative to a baseline scenario, which will be developed as part of the technical assistance.

Travel demand modeling led by PIMUS provides the only baseline that is available. This modeling combines socio-demographic data with a representation of the transport infrastructure that is expected to exist. Currently, emissions from public buses meet, at best, Euro III standards. Electric buses have zero tailpipe emissions. The potential for emissions reductions from the integration of cleaner technologies is great, and will vary with the specific drive cycle. A complete study will show the reduction in GHG and local pollutants for different bus types according to operatively viable penetration rates.

Other significant impacts may result from routes optimization, namely lower vehicle kilometers travelled (vkt), which means higher efficiency; higher number of passengers per vkt, indicating higher productivity of the public transport system; and greater availability of transportation. Electric buses can help enhancing mobility while preserving the sustainability of the historic districts (Casco Antiguo). Electric buses can also promote and be integrated with renewable and distributed energy resources.

7. Relevance to NDCs and other national priorities

The current project is aligned with Panama's NDCs and will inform the strategic choice of technologies to reduce emissions via low emission transport. The emphasis of the assistance is on mitigation of climate impacts related to public transport systems in Panama City through its focus on innovative zero emission electric bus technologies. Emissions mitigation, air quality improvements, and productivity increases are at the core of this initiative. In addition to these core outcomes, the technical assistance includes built-in mechanisms to deliver co-benefits, promoting resilience and sustainability beyond the project scope. This project is supported by the national (Ministry of Environment and National Secretariat of Energy), and municipal (Panama City) governments.

Panama´s national government mandate is to build a strong climate change policy framework to move toward a low-emissions and climate-resilient economy. Among the strategic action areas of the Strategic Governance Plan 2015-2019 is environmental sustainability and climate change. The General Environment Law, updated by Law 8 on March 2016, includes a title about climate change, with two chapters about mitigation and adaptation. Under this mandate, Panama is developing the first National Climate Change Strategy (ENCCP, Spanish acronym for Estrategia Nacional de Cambio Climático de Panamá).

ENCCP aims to increase the capacity for adaptation of vulnerable populations and promote the transition to a low-carbon economy. Of the goals listed for the transport sector, in particular the fifth is directly related to this technical assistance:

- Integrate multimodal transport systems;
- Diversify land use to facilitate accessibility to places of business;
- Reduce distances between sites accessible to public transport and areas where the service is needed;

- Design and build infrastructure for non-motorized users (pedestrian-oriented design);
- Promote the use of alternative fuel vehicles;
- Build lines 2 and 3 of the Panama Metro.

8. Linkages to relevant parallel on-going activities:

The Panama metropolitan region is ready to change. With the construction of the Metro transit system the country has made an enormous investment on the path to low-carbon mobility. Approving the PIMUS as a long-term planning document continues that transformation at the policy level. At this point, an assessment on new technologies for urban buses is needed to create the necessary tools to make a transformational change in the urban mobility of Panama.

The Plan del Centro is another initiative that goes in line with this technical assistance. Its objectives are to discourage the use of private cars in downtown, to give preference to non-motorized transport modes, and to generate the conditions for the use of non-motorized modes to connect the metropolitan transport system and the downtown area (http://plandelcentro.com/).

Additionally, Panama City has begun a six-month electric bus pilot on a route from the Plaza Cinco de Mayo to the Casco Viejo metro station. The City is coordinating this pilot with the Transit Authority (ATTT), the Ministry of Environment, the Department of Energy and the MIBUS company. Although the particular bus used in the pilot is having some difficulties, the objective is to evaluate the ability of the bus to operate in the narrow streets of San Felipe, as well as to assess user demand for this new service.

9. Anticipated follow up activities after this technical assistance is completed:

The technical assistance will lead to a number of deliverables that are critical to an improved transport system in Panama. In particular:

- A baseline report and database detailing expected current and future trends in urban mobility in Panama. This report will be instrumental for future reference and scaling up of activities related to urban transport.
- A report providing a model for developing a sustainable transport system that can be further scaled up. The primary objective of the report will be to assess how the different technologies can best be utilized to improve the sustainability of the urban transport system. This document could be used in future planning and will help inform public and private sector decision-making.
- An input for fundraising activities in collaboration with national stakeholders and funding agencies, to scale up and implement the TA. This document will be instrumental for leveraging large-scale support with international funding agencies and donors. If the TA is successful in leveraging large-scale funding as planned, it would lead to major investments in sustainable transport management. Implementation could immediately follow the TA if a proactive approach is taken and could benefit many Panamanians. By the end of the TA it will be possible to make better projections of the total potential environmental and economic impact of scaling up the planned activities.
- An input for the development of a National Strategy on sustainable transport in Panama.

11. Main in-country stakeholders in implementation of the technical assistance activities:

Using the table below, please list and describe the role of in-country stakeholders, participants and beneficiaries who will be involved in or directly consulted during implementation of the assistance.

In country stakeholder	Role in implementation of the technical assistance
National Secretariat of Energy	*Provide technical and economic information and feedback on the energy sector in Panama, mainly fuel and electricity markets, taxes, actual conditions and projections. A senior person in this agency will act as contact point, facilitating interactions between in-country stakeholders and the consulting team.*
Ministry of Environment	*Provide information about environmental policies and regulation, environmental assessments available, taxes, actual emissions and projections.*
Municipality	*The Municipality is the sponsor of the electric bus pilot and has been paying for the cost of electricity fuel from the outset (October 2017). It will also authorize the access to the bus for research purposes.*
MiBus	*Provide information and authorization for the survey of the buses and bus lines operation and the techno-economic and environmental analysis.*

12. SDG Contributions:

*Instructions: Please complete the grey section below for **a maximum of three SDGs** that will be advanced through this TA. A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/.*

Goal	Sustainable Development Goal	Direct contribution from CTCN TA (1 sentence for top 1-3 SDGs)
1	End poverty in all its forms everywhere	
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	
3	Ensure healthy lives and promote well-being for all at all ages	
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	
5	Achieve gender equality and empower all women and girls	
6	Ensure availability and sustainable management of water and sanitation for all	
7	Ensure access to affordable, reliable, sustainable, and modern energy for all (consider adding targets for 7)	
	7.1 - By 2030, ensure universal access to affordable, reliable and modern energy services	
	7.2 - By 2030, increase substantially the share of renewable energy in the global energy mix	
	7.3 - By 2030, double the global rate of improvement in energy efficiency	
	7.a - By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	
	7.b - By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support	Support deployment of infrastructure to recharge electric buses.
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
10	Reduce inequality within and among countries	

monitor the timeliness and appropriateness of the Response Plan implementation. Upon completion of all activities and outputs, evaluation forms will be completed by the (i) NDE about overall satisfaction level with the technical assistance service provided; (ii) the Lead Implementer about the knowledge and learning gained through delivery of technical assistance; and (iii) the CTCN Director about timeliness and appropriateness of the delivery of the activities and outputs.

5. Design Considerations

In order to maximize the impact of the technical assistance provided by the CTCN and provide an effective M&E process, the Response Plan should integrate as much as possible the considerations below:

Climate Technology focus: The Response Plan should have a clear focus on climate technologies, and identify activities that enable the identification, development, deployment or diffusion of one or several specific technologies (including equipment, techniques, knowledge and skills).

Barrier removal / Problem solving: The activities should contribute to address the specific problem statement identified in the Request. The barriers identified should be those hampering the identification, development, deployment or diffusion of one or several climate technologies or climate actions. Therefore, it may be necessary to limit the CTCN Response Plan to a set of activities for technical assistance commonly agreed with the NDE (and Proponent when needed) compared to the original request submitted. The CTCN will liaise with NDEs and Proponent in case the scope of the technical assistance deviates from the original request.

Use of the CTCN assistance by stakeholders: The Response Plan should identify clearly how the products of the CTCN assistance will be used in the short term once support is delivered, by who and when, to ensure it will lead to specific impacts in the country. The activities should engage the stakeholders that will use the concrete results of the assistance to deploy the technologies, including from the private sector, the public sector, research institutions, etc.

Within the scope of CTCN resources: The cost of the technical assistance provided by the CTCN cannot exceed USD 250,000 per Response Plan. Therefore, it may be necessary to prioritize activities and limit the CTCN Response Plan to a set of priority activities commonly agreed with the Proponent and the NDE to remain under this value. Under section 4 of the Response Plan template, an indicative activity-based budget should be presented. The proposed budget is indicative and should present an estimated costing range per activity, output as well as a total costing range for the delivery of the Response Plan. Once the Response Plan is finalised and published for tendering, interested parties will provide competitive offer against the indicative budget.

CTCN activities and outputs should be linkable to monitoring and evaluation indicators: All proposed activities and outputs must be linkable to monitoring and evaluation indicators that are specific, measurable, achievable, relevant, and time-bound. The monitoring and evaluation process and corresponding indicators will be developed by the Lead Implementer as part of the work plan and will allow the CTCN technology Manager to monitor the timeliness and appropriateness of the implementation.

Synergies with existing efforts: The Response Plan should focus on activities that are not already being fully supported or that are in the process of being fully supported by another national, regional or international organization. Synergies and complementarity also require that the CTCN assistance is not duplicating past activities. It is possible in the Response Plan to indicate co-financing from the government, the Proponent or another stakeholder, that will maximize the effectiveness of the CTCN assistance.

Gender mainstreaming: The CTCN mission is to build or strengthen developing countries' capacities to identify technology needs, to facilitate the preparation and implementation of technology projects and strategies taking into account gender considerations. The Response Plan must therefore describe how gender considerations will be included and monitored within the proposed activities, and any gender co-benefits that will be gained as a result of implementing the CTCN technical assistance.

3. Role of the Response Planning Design Team

The Response Planning Design Team is selected by the Climate Technology Centre (CTC). The composition of the team depends on each particular request but may include the National Designated Entity (NDE), the request Proponent, Climate Technology Manager of the CTCN, experts from the CTCN Consortium, UNIDO and UNEP experts from regional offices and other experts as needed.

The role of CTCN Consortium experts is to lead the design of the Response Plan. The NDE will provide overall guidance on national context and priorities whereas the request Proponent will provide more detailed information on the sector, barriers and requested assistance. The Climate Technology Manager of the CTCN will provide quality assurance of timeliness and appropriateness of the Response Plan.

The Response Planning Design Team will draft all sections of the Response Plan template building on the information contained in the CTCN Request, based on expertise on the given topic and potentially further data collection, as required. This will be done by the CTCN Consortium Experts in consultation with the NDE, request Proponent and relevant stakeholders. The Response Plan has to be agreed to and approved by the NDE and the CTCN Director. This Response Plan will serve as the basis to identify, select and engage an expert institution from the Climate Technology Network or Consortium to lead the implementation of the CTCN Response Plan in the requesting country.

To the extent possible, staff from UNEP and UNIDO Regional, Sub-Regional and/or National Offices should be involved in all stages of formulation of the Response Plan to maximize synergies and avoid overlap with ongoing initiatives, as well as ensure relevance to regional and national context.

4. Process for designing the Response Plan

The Response Planning process should be completed over a period of up to 60 working days (12 weeks). Indicative steps and related timelines are laid out below: